

## Claims

1. A method for transmitting signals between a first radio station (1) and a second radio station (2), in which a pre-equalization of the signals to be transmitted is done in a modulator (4) of the first radio station (1), characterized in  
5 that the pre-equalized signals are transmitted from the first radio station (1) to the second radio station (2) via a plurality of radio channels (20, 25).

2. The method of claim 1, characterized in that one pre-equalized signal at a time is transmitted by a plurality of antennas (50, 55) of the first radio station (1) and via a respective radio channel (20, 25) to the second radio station  
5 (2), wherein for each radio channel (20, 25) an estimate of an impulse response is ascertained in the first radio station (1), and a pre-equalization of the signal to be broadcast from the applicable antenna (50, 55) is performed as a function of the estimate of the impulse responses of the radio channels (20, 25).

3. The method of claim 2, characterized in that a reference signal is transmitted from an antenna (60) of the second radio station (2) to the first radio station (1) via the radio channels (20, 25), and that the estimate of the impulse  
5 response of the respective radio channel (20, 25) is derived from a reception of the reference signal in the first radio station (1) via the respective radio channel (20, 25).

4. The method of claim 1, characterized in that a pre-equalized signal broadcast by the first radio station (1) is received by a plurality of antennas (60, 65) of the second radio

station (2), each via a respective radio channel (20, 25), and in  
5 the first radio station (1) an estimate of a total impulse  
response of all the radio channels (20, 25) is ascertained, and a  
pre-equalization of the signal to be broadcast by the first radio  
station (1) is performed as a function of the estimate of the  
total impulse response, and that the received signals formed by  
10 the antennas (60, 65) of the second radio station (2) are  
combined linearly and are then delivered to a demodulation.

5. The method of claim 4, characterized in that one  
reference signal is transmitted from the antennas (60, 65) of the  
second radio station (2) to the first radio station (1) via the  
associated radio channel (20, 25), and that the estimate of the  
5 total impulse response is derived from a superimposed reception  
of the reference signals in the first radio station (1).

6. The method of claim 5, characterized in that each  
reference signal is multiplied by a coefficient as a function of  
the radio channel (20, 25) used for its transmission, and that in  
the linear combination of the signals received by the antennas  
5 (60, 65) of the second radio station (2), each received signal is  
multiplied by the coefficient of the radio channel (20, 25) used  
for its transmission.

7. The method of claim 1, characterized in that via  
further radio channels, signals are transmitted between the first  
radio station (1) or the second radio station (2) and further  
radio stations (3), wherein the data from different radio  
5 stations transmitted with the signals is expanded with different  
codes, and that the pre-equalization is performed in the  
modulator (4) of the first radio station (1) as a function of all  
the different codes and of the transmission properties of all the

radio channels.

8. The method of claim 7, characterized in that the transmission properties of the radio channels are ascertained from data transmissions of the second radio station (2) and the further radio stations (3) to the first radio station (1).

9. A radio station (1) having a modulator (4), in which a pre-equalization of signals to be transmitted is effected in the modulator (4), characterized in that at least two antennas (50, 55) are provided, from which a broadcasting of the pre-equalized signals is effected, via a respective radio channel (20, 25), to a further radio station (2).

10. The radio station (1) of claim 9, characterized in that at least one channel estimator (11, 12) is provided, which for each radio channel (20, 25) ascertains an estimate of its impulse response, and that the pre-equalization of the signal to be broadcast in the respective antenna (50, 55) is effected as a function of the estimates of the radio channels (20, 25).

11. The radio station (1) of claim 9, characterized in that a code generator (5) is provided, which expands the data transmitted with the signals with a code, wherein the code generator (5) ascertains the code as a function of a selected radio connection, and that the pre-equalization of the signal to be broadcast by the respective antenna (50, 55) is effected as a function of all the currently used codes and of the transmission properties of all the currently used radio channels.

12. A radio station (2) having at least two antennas (60, 65), characterized in that by means of the at least two antennas

(60, 65), the radio station (2) receives pre-equalized signals via a respective radio channel (20, 25).

13. The radio station (2) of claim 12, characterized in that a linear combination of the signals received via the at least two antennas (60, 65) is effected in the radio station (2), wherein the received signals are pre-equalized as a function of the superimposed transmission properties of the corresponding radio channels (20, 25), and that the linear combination is delivered to a demodulator (7).

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